

Application No. 10/064,791  
Docket No. 13DV-13975  
Amendment dated February 4, 2004  
Reply to Office Action of November 4, 2003

### REMARKS

In the Office Action, the Examiner reviewed claims 1-38 of the above-identified US Patent Application, with the result that claims 1-25 were withdrawn from consideration due to a restriction requirement, claims 26-38 were rejected under 35 USC §102 and under the judicially-created doctrine of obviousness-type double patenting in view of commonly-assigned U.S. Patent No. 6,492,038, and claims 26, 28, 29, and 31-38 were rejected under 35 USC §103 in view of U.S. Patent No. 6,042,951 to Kojima et al. (Kojima) and U.S. Patent No. 6,251,504 to Jaslier et al. (Jaslier). In response, Applicants have amended the specification and claims as set forth above.

More particularly:

The title of the invention has been amended at page 1 of the specification so as to be more descriptive of the invention recited in the elected claims.

The specification has been amended to update the status of Attorney Docket No. 13DV-13322 filed in the name of Rigney et al., which issued as the above-identified Rigney patent after the filing of the present application.

Independent claims 26 and 34 have been amended to specify that the elemental carbon and/or insoluble gas is entrapped within pores (32) substantially throughout the thermal-insulating material (26). Support for these amendments can be found in Applicants' specification at paragraph [0010] and Figure 2.

New independent claim 39 is being presented that corresponds to the

Application No. 10/064,791  
Docket No. 13DV-13975  
Amendment dated February 4, 2004  
Reply to Office Action of November 4, 2003

limitations of original independent claim 26 combined with its dependent claim 27, and new dependent claim 40 (which depends from new claim 39) is being presented that corresponds to the limitation recited in original dependent claim 30. New claims 39 and 40 are presented for the reason that dependent claims 27 and 30 were not subjected to the rejection under 35 USC §103 as being unpatentable over Kojima and Jaslier.

Claims 1-25 have been canceled in view of the above-noted restriction requirement, for the purpose of reducing and simplifying the issues remaining in the examination of Applicants' application.

Applicants believe that the above amendments do not present new matter. Favorable reconsideration and allowance of remaining claims 26-40 are respectfully requested in view of the above amendments and the following remarks.

### **Restriction Requirement**

In the Office Action, the Examiner required that Applicants affirm an election under 35 USC §121 between claims 1-25 (Group I) drawn to a process and claims 26-38 (Group II) drawn to a coating. During a telephone interview at the Examiner's initiation on October 25, 2003, Applicants' representative provisionally elected with traverse to prosecute Group II, claims 26-38. Applicants hereby affirm the election to prosecute claims 26-38 on the merits. As indicated above, the unelected claims of Group I have been canceled by Applicants.

Application No. 10/064,791  
Docket No. 13DV-13975  
Amendment dated February 4, 2004  
Reply to Office Action of November 4, 2003

### Priority

The Examiner noted that Applicants had not yet filed a certified copy of the Ukrainian application on which foreign priority is claimed. In response, Applicants are forwarding under separate cover the required certified copy.

### Double Patenting Rejection

The Examiner rejected claims 26-38 under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of Rigney. Applicants request that the obviousness-type double patenting rejection be held in abeyance until allowable subject matter has been indicated by the Examiner. If appropriate under the circumstances existing at that time, a terminal disclaimer pursuant to 37 CFR §1.321(b) will be submitted which terminally disclaims that portion of the patent issuing from the present patent application which extends beyond the termination date of Rigney.

### Rejection under 35 USC §102(e)

Claims 26-38 were also rejected under 35 USC §102(e) as being anticipated by Rigney. Applicants respectfully request reconsideration of this rejection in view of the following comments.

Application No. 10/064,791  
Docket No. 13DV-13975  
Amendment dated February 4, 2004  
Reply to Office Action of November 4, 2003

Rejections based on a §102(e) reference with a common inventor can be overcome by, among others, a showing that the subject matter of the application and the reference were, at the time the invention was made, commonly-owned or subject to an obligation of assignment to the same entity, if the application was filed on or after November 29, 1999 (see MPEP 706.02(I)).

The undersigned hereby affirms that, at the time Applicants' invention was made, the inventors identified in the present application and in Rigney were subject to an obligation of assignment to the same entity, namely, the General Electric Company, as evidenced by the recorded Assignments to General Electric Company for both patent applications. The assignment for the present U.S. Patent Application Serial No. 10/064,791 was recorded on August 16, 2002, at Reel No. 012995 and Frame 0414.

In view of the above, Applicants respectfully request withdrawal of the rejection of claims 26-38 under 35 USC §102(e).

### **Rejection under 35 USC §103**

Independent claims 26 and 34 and their dependent claims 28, 29, 31-33, and 35-38 were rejected under 35 USC §103(a) as being unpatentable over Kojima in view of Jaslier. Applicants respectfully traverse this rejection in view of the claims as amended and the following comments.

Application No. 10/064,791  
Docket No. 13DV-13975  
Amendment dated February 4, 2004  
Reply to Office Action of November 4, 2003

Applicants' invention is directed to stabilizing the microstructure of a TBC 26 to resist grain growth, sintering and pore coarsening or coalescence during high temperature excursions. For this purpose, the TBC 26 is formed to contain elemental carbon and/or a gas insoluble in the TBC material, with the carbon or gas being entrapped within pores 32 within the TBC 26. To stabilize the TBC microstructure, the carbon or gas are present in pores 32 that are said to be present substantially throughout the TBC 26 in an amount sufficient to thermally stabilize the TBC microstructure.

Under the §103 rejection, the Examiner explained that Kojima (in combination with U.S. Patent No. 5,512,382 to Strangman) discloses a columnar TBC containing porosity, but fails to disclose the pores as containing an insoluble gas. The Examiner then cited Jaslier for disclosing the deposition of a TBC during which a reactive polluting gas such as carbon oxides is introduced. From this, the Examiner concluded that it would have been obvious to modify Kojima with Jaslier to arrive at Applicants' invention. However, Jaslier is limited to disclosing that the polluting gas is introduced only intermittently for the limited purpose of "caus[ing] a rupture of the crystallographic growth pattern of the coating during deposition" (column 4, lines 43-45). Accordingly, Jaslier does not teach, and cannot be said to suggest, introducing a gas into the coating chamber throughout a sufficient part of the coating process to yield gas-filled pores in an amount sufficient to stabilize the microstructure of the TBC. At best, the combined prior art would result in Kojima's TBC containing gas-filled porosity

Application No. 10/064,791  
Docket No. 13DV-13975  
Amendment dated February 4, 2004  
Reply to Office Action of November 4, 2003

within very limited and discrete layers of the TBC. Any attempt to arrive at Applicants' invention based on the combination of Kojima and Jaslier would require modifications beyond that achieved or suggested by the combination.

In view of the above, Applicants therefore respectfully request withdrawal of the rejection to the claims under 35 USC §103(a).

**Closing**

Applicants believe that all rejections to their claims have been addressed, and that the claims define patentable novelty over all the references, alone or in combination, of record. It is therefore respectfully requested that this patent application be given favorable reconsideration.

Should the Examiner have any questions with respect to any matter now of record, Applicants' representative may be reached at (219) 462-4999.

Respectfully submitted,

By *Domenica N. S. Hartman*  
Domenica N.S. Hartman  
Reg. No. 32,701

February 4, 2004  
Hartman & Hartman, P.C.  
Valparaiso, Indiana 46383  
TEL.: (219) 462-4999  
FAX: (219) 464-1166